

# MADE IN HOLLAND

## AGRI-FOOD

Leading in Innovation • Health and Sustainability • Integral Chain Approach  
Solutions for Global Issues • Strategic Alliances • Knowledge Hub



Pioneers in international business



A man with glasses and a light blue button-down shirt is sitting in the center of a large, open-sided chicken house. He is holding a brown hen in his arms. The house is filled with thousands of similar brown hens, some standing and some sitting. The structure has a high ceiling with wooden beams and large windows that look out onto a green field. The overall atmosphere is one of a well-maintained, spacious poultry farm.

## The Dutch Way

Photo: Ger Loeffen

### Feelgood farming

The living space of these egg-laying hens is determined by their daily routine. In the Rondeel stalls 30,000 laying hens can shelter and forage and enjoy a dust bath as well as eat, drink and roost. This farming method in roundel stalls, based on a study by Wageningen University, is a prime example of the transition to a sustainable future, representing the perfect balance between corporate social responsibility, animal welfare and a pleasant working environment for the poultry farmer. The fourth Rondeel stall is currently in the planning stages and the eggs are finding their way to more and more supermarkets and caterers. Visitors are welcome to visit the stalls 365 days a year.



# Welcome

The Netherlands is a small country that thinks big. Due to its fertile soil and smart solutions, it is the second-largest exporter of agri-food products in the world, after the United States. Hard effort and smart working practices have resulted in a workforce that has the highest added value per FTE in Europe. Companies, knowledge institutes, and policymakers have joined forces in order to create a well-equipped and highly effective knowledge infrastructure that meets the requirements of today's knowledge-intensive agri-food sector, enabling the sustainable and efficient production of high quality, healthy and tasty foods. Dutch entrepreneurs and researchers are eager to address and solve global challenges. In order to achieve this aim, they invest, for example, in state-of-the-art-scientific solutions as well as developing practical solutions for the agri-food sector. This publication offers you a glimpse into Holland's innovative agri-food sector. We would be delighted to welcome you and invite you to join forces with us!

## MADE IN HOLLAND AGRI-FOOD

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**About this publication,** *Made in Holland; Agri-food* (December 2012) is a publication issued by NL Agency, which is part of the Dutch Ministry of Economic Affairs. **Editorial address** NL Agency / *Made in Holland*, PO Box 20105, 2500 EC The Hague, The Netherlands, [madeinholland@info.agentschapnl.nl](mailto:madeinholland@info.agentschapnl.nl) **Editor-in-Chief** Carin Bobeldijk **Final editor** Sonja Haase **Editing** Kris Kras Design, Rosali de Hart, Werner Bossmann, Donald Macdonald **Cover photo** 123rf.com **Contributors** Ministry of Economic Affairs, Secretariat Top Sector Agri-Food, NL Agency **Concept, design and art direction** Kris Kras Design, Utrecht **Translation** Concorde Group, Amstelveen.

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Ministry of Economic Affairs



## In the Spotlight

Photo: HH/Sabine Joosten





Photo: HH/Sybe Swart

## International leaders from farm to fork



The Netherlands has a favourable climate and fertile soil types and, consequently, it boasts a flourishing agricultural sector. Its agri-food sector is a global leader in terms of innovation and volume. In absolute figures the Netherlands generates 7.5% of global exports in agricultural and food products, surpassed only by the US. This is an astounding performance for such a small country. The Dutch are also renowned for their turnkey approach, which they export to trading partners abroad. Aviko was founded in 1962 by a small group of potato farmers and is now the second-largest potato processing business in Europe and one of the largest suppliers of chilled French

fries in the world. Its objective is to transform the humble potato into a pre-processed convenience product and its range of meal options is a response to increasing consumer demand for convenience products. Its products can be found in the frozen and chilled sections of most supermarkets. The Dutch food processing industry includes a number of large multinationals: 8 out of 25 of the largest Dutch companies are food processing businesses. In addition, there is a remarkably high number of successful medium-sized companies (with 200-500 employees) operating in the sector.



## Higher added value for those who need it

Traditionally, the Dutch have achieved maximum returns with minimal resources. With such a small surface area it's the only option. Nowadays, they no longer achieve growth by increasing productivity or by working harder. They do so by continuing to work more intelligently and increasing the value of their products. In the agri-food sector the focus of this added value is on health, sustainability, taste and comfort. This allows the food produced by Danone Baby & Medical to make a real difference to the lives of hospital-patients, babies and other

vulnerable groups. However, so-called functional foodstuffs are also essential for other population groups such as the elderly. Staying healthy and fit while growing old is a new challenge, now that world citizens are living longer. Therefore, the Netherlands is making considerable investments in high-quality research to develop new, functional, agri-food products and to upgrade standard foodstuffs to high-value ones. But we are also focusing on salt reduction, raw materials flexibility, protein innovations and improved packaging and storage technology.



## In the Spotlight

Photo: HH/George Burggraaff





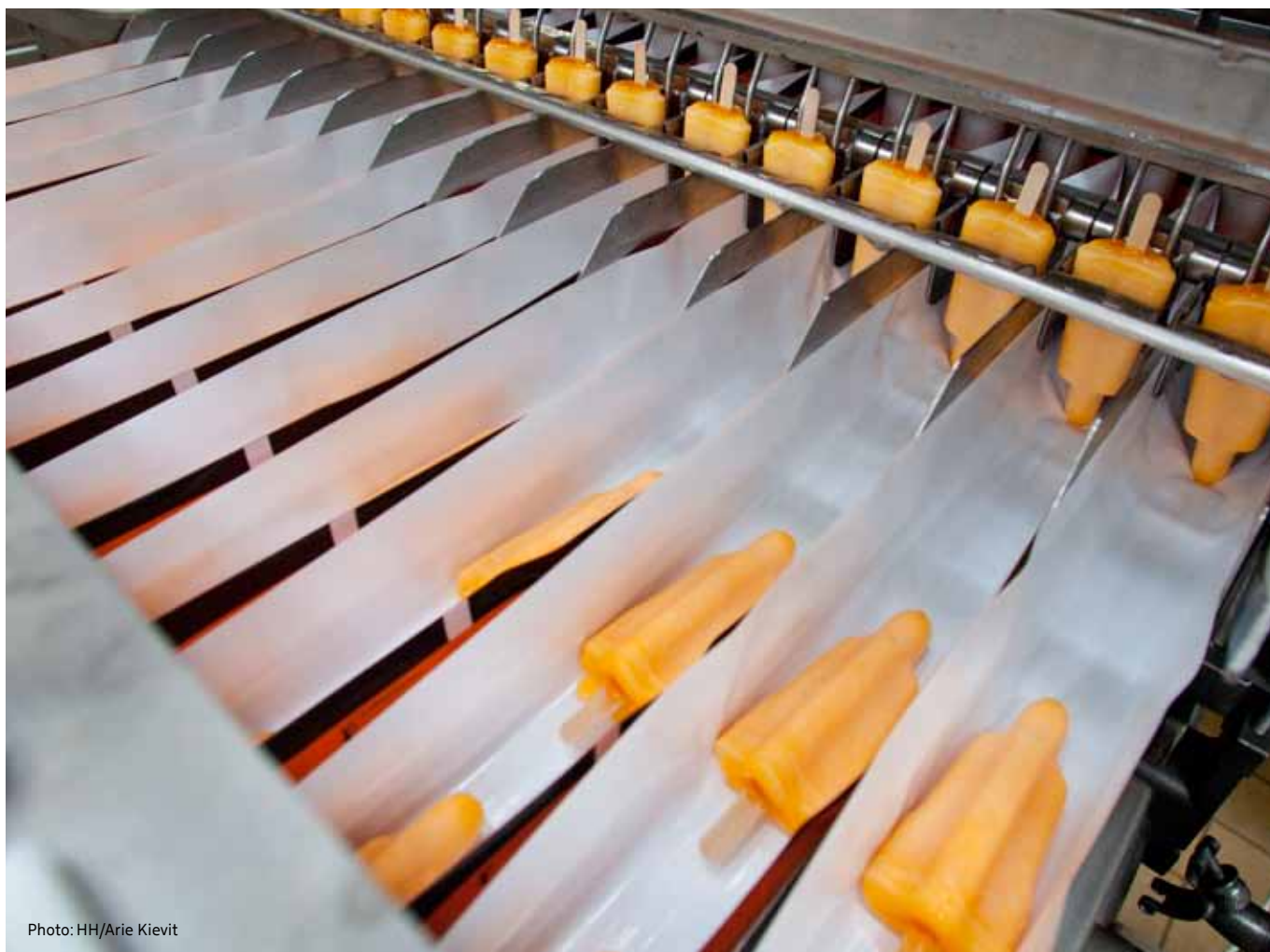


Photo: HH/Arie Kievit

## Doing more with less



In 2050, there will be nine billion mouths to feed in the world. This is one of the greatest challenges of our time. How do we achieve a healthier population in a healthier world? Vital resources such as water, soil and energy are becoming increasingly scarce. The Dutch sector is happy to accept the efficiency mission and is investigating how to achieve more with less. 'Green' and 'growth' can happily coexist in a biobased economy. So we can create a truly sustainable cycle in the world. One example of a company that encourages sustainable developments is Provalor. The small business (with just seven employees) focuses on transforming residual products from

the vegetable processing sector into ingredients, natural colourings, juices and purees, thus adding value to them. Colour extracts are obtained from pepper and beet residual products. These types of natural colourings are used for example in rocket-shaped Dutch ice-lollies. Colouring from peppers is a typical example of doing more with less. This type of innovative food production or processing offers many opportunities. In this way, the focus of the Netherlands is always on sustainability as a total concept, in which man, animals and the environment are all part of the equation.



## Making each and every link sustainable

There is a saying that goes "If a job's worth doing, it's worth doing well". This vision is reflected in the Dutch desire to implement changes in every part of the chain. This is because they are well aware that the chain is only as strong as its weakest link. A holistic approach is the only way to make a sector truly sustainable, or to elevate it to a higher level. A prime example is the veal produced by the VanDrie Group, which is a product that is in high demand internationally. The Dutch family business provides every essential piece of

information about its veal including which feed the calves are given, and the measures the company takes in terms of animal welfare and compliance with hygiene regulations and transportation. All these points are monitored by independent bodies. By applying its own Safety Guard quality system the VanDrie Group can provide guarantees for the entire chain, for example regarding the meat's quality and origins.

# Bits & bites

Dutch production efficiency is high. In the Netherlands the added value per hectare is up to five times higher than the European average.



The Netherlands is the **second-largest**

exporter of agri-food products in the world, surpassed only by the US (which has a surface area 296-times greater).

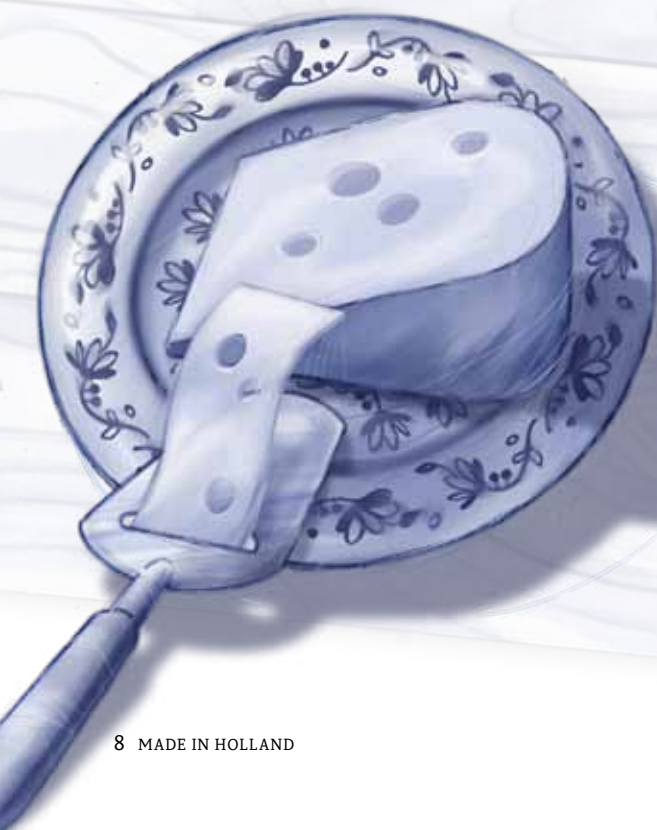


**654,000,000 kg**

of cheese exports, the 4th-largest worldwide.

**Global top 40**

4 Dutch companies are included in the global top 40 food & beverage companies: Unilever, Heineken, VION and Royal FrieslandCampina.



**80%**

More than 80% of exports are destined for Europe, primarily Germany and other neighbouring countries.



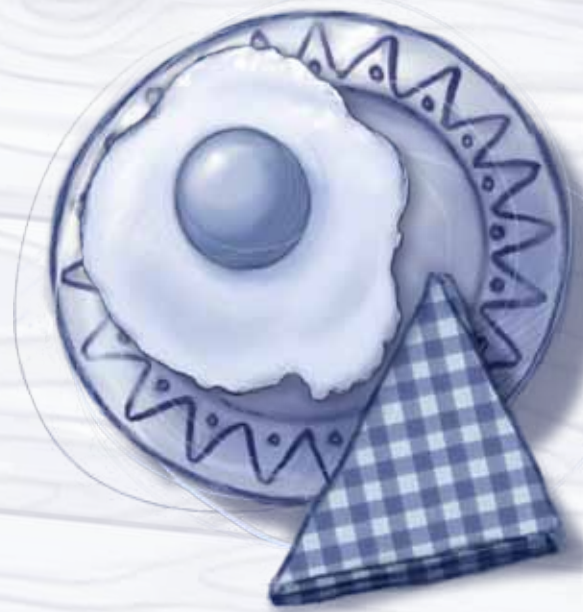
**4,100**

**supermarkets**

serve around 17 million  
Dutch inhabitants



Amsterdam is the **largest**  
**cocoa port** in the world.



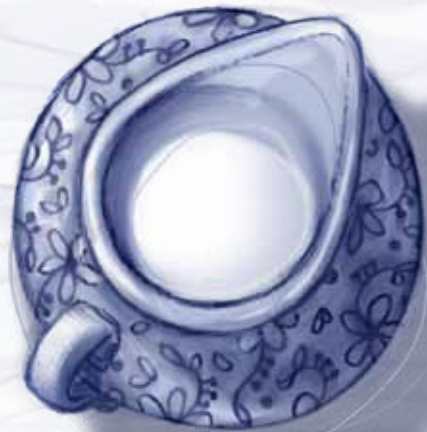
**1.5 million**  
**dairy cows**

occupy 19,200 farms (2011).



**Academic**

2 Dutch universities feature in  
the European top 10 with regard  
to the number of publications  
related to the agri-food sector.




**R&D**

Number 2 (as a % of GDP) in Europe  
for private R&D investments made by  
companies located in the Netherlands.

**€ 48 billion**

added value for the  
Dutch economy



A man in a dark suit and light blue tie stands in a lush green field. Several cows are grazing in the background. The sky is overcast with grey clouds. The man is looking towards the camera with a slight smile. A white text box is overlaid on the bottom right of the image.

“If you manage  
raw materials  
efficiently, you  
will create  
added value”





**Cees 't Hart** is the figurehead of the Dutch Agri-Food Sector Top Team and CEO of Royal FrieslandCampina. The top team consists of companies, knowledge institutions and government and works as a stimulus for the agri-food sector. It allows the sector to continue to strengthen its sustainable, innovative and internationally competitive position.



[www.top-sectoren.nl/agrofood/contact](http://www.top-sectoren.nl/agrofood/contact)

# Quality food stimulus

“Too little food, too much salt, too much fat, too much agricultural material discarded. These are all problems that are the order of the day. These are global issues. The Netherlands wants to apply an effective agri-food sector approach to help solve these problems. By working more efficiently, by using everything up to the last remaining waste products, by making food safer and unlocking knowledge.”

## How does the Dutch agri-food sector measure up internationally?

“We are an international front-runner and a driving force of the Dutch economy. This is due to our trading spirit and drive to continue to grow and innovate. We intend to further expand this position. Our sector can ensure that the increasing world population has sufficient, healthy food to eat. People are often surprised by this and ask me how we can grow with the little land we have, and in such a way that it also remains socially acceptable. Our opportunities lie in creating added value by using raw materials more efficiently or by devising innovative food systems. One fine example involves using the waste from sugar beet production as support material in hockey sticks. The Netherlands is also leading the way in ideas for food security. We are exporting this knowledge to other countries such as Bangladesh, which is flooded with salt water every two to three years. We can support such a country with our expertise in cultivating potatoes that can grow in saline soils.”

## What is the vision of the Dutch agri-food sector?

“We make two strategic choices: the first is ‘doing more with less’. This involves using less water more efficiently, using energy and waste flows more efficiently and reducing CO<sub>2</sub> emissions in the entire chain. The second is ‘higher added value’. We innovate in health, sustainability, taste and convenience. Think about functional ingredients that add just that little bit extra for target groups that desperately need it. Or reducing the amount of salt and saturated fats that are used, better hygiene in processing and distribution methods, more ready-made products and improved portion sizes.”

## Who are the major players in the sector?

“The Netherlands, is forward-looking. This is reflected in our investments in innovation. Danone is constructing a large, new R&D centre in Utrecht, where it will concentrate its European research on clinical nutrition and nutrition for children. In 2011, Heinz decided to build a new R&D centre in Nijmegen. My own company, Royal FrieslandCampina, has a large R&D centre in Wageningen. The target countries of the Agri-Food Top Sector are China, South Korea, Bangladesh, Indonesia, Vietnam, Turkey, South Africa, Mexico, Brazil and Russia.”

## How does the sector work together?

“In the Netherlands collaboration is a high priority. Companies, government and knowledge institutes work seamlessly together. The Netherlands is also effective at forming public-private and international partnerships, in which knowledge institutes and the market work closely together. Just take the example of the strategic bundling of forces such as in the case of the Top Institute Food and Nutrition (see pages 14 and 15, ed.) and the Food & Nutrition Delta.”

## What can we expect from the Dutch?

“Naturally, businesses, knowledge institutes and the government want to reinforce our leading position in global agri-food exports. We also want to encourage internationally active SMEs. Indeed, SMEs provide 70% of our jobs and 50% of our products. The Netherlands also wants to help emerging and developing countries to create and apply integrated system solutions. This involves efficiently linking production chains and closing cycles. Take for example wastewater from the potato industry. It is already used in the Netherlands to cultivate algae, which in turn is a source of food for mussels and sole. Furthermore, we are creating a fertile breeding ground for the arrival of new foreign (agri-) food sector companies in the Netherlands.”

## Best Practises

### Eggs to combat age-related macular degeneration

If you want to reduce the risk of losing your sight or sight impairment in later life, you should try a special drink made from eggs. Newtricious BV carried out research into the benefit of eggs in treating the eye disease LMD. Carotenoids, natural pigments found in Marigolds for example can stabilise LMD. By adding the pigment to chicken feed, Newtricious succeeded in enriching eggs with extra carotenoids. Then they processed the egg yolks into a dairy drink. Maastricht University Hospital studied its effects. So what exactly did they find? The body absorbs the carotenoids from the egg yolks much more efficiently than those from vegetables and supplements. "We shifted from our background in agro-food to a field in-between food and pharma", explains director Jos Nelissen. "We are developing products such as these to combat LMD and cardiovascular disease. We are working with science on the quality of life." [www.newtricious.nl/index.php/en](http://www.newtricious.nl/index.php/en)

### One man's waste is another man's wealth

If you place two businesses close together that can make use of each other's residual products then you end up with less waste. This was the idea behind a completely new type of production location developed by Ten Kate Vetten from Musselkanaal. The company and its potential partners examined their incoming and outgoing flows to determine which ones could be combined to create efficiency advantage. Ten Kate joined forces with Gelita, AFB International and Avebe to create an 'industrial ecosystem'. Three of the companies are connected by pipelines. Avebe supplies steam and power to the cluster. Ten Kate supplies Gelita with egg-whites, which Gelita uses to produce gelatine. Ten Kate processes the meat proteins, which are

Gelita's residual product. The economic and environmental results of this cooperation are impressive. Steam consumption has decreased by 50%, electricity consumption by a third and CO2 emissions have decreased by 50% compared with 2002 before the companies began to work together. Savings of 300,000 litres of fuel have also been achieved. The industrial park in South Groningen is one of the first sustainable industrial parks in the Netherlands.

In 2003 the leading, popular Dutch magazine P+ (People Planet Profit) named the cluster in Musselkanaal the most sustainable industrial park in the Netherlands, a fine example of industrial ecology. [www.tenkate.nl/index.php/en](http://www.tenkate.nl/index.php/en)

## Energy and water from waste flows

Imagine that you have a vegetable processing firm in the port of Terneuzen and process 6,000 hectares of peas, beans, and various root vegetables every year. After they have been processed you are left with 10,000 tonnes of vegetable waste. What do you do with it? Well, EcoFuels, an initiative of Laarakker Groenteverwerking, uses it to produce sustainable energy. An advanced fermenting technique produces biogas from 120,000 tonnes of biomass, from Laarakker and other food processing plants. Every year three fermentation systems, CHP plants and a green gas plant produce 2.2 million m<sup>3</sup> of green gas, 2,520 tonnes of green liquid CO<sub>2</sub> and 20 million kWh of green energy. The electricity can power 6,500 homes. After undergoing several purifying and separation stages water from the biomass is used for washing or irrigation. The compost producing industry uses the remaining 1.5% of waste as compost and substrate. [www.ecofuels.nl](http://www.ecofuels.nl)



### Delicious, long-life milk

For decades, people have been trying to sterilise milk so that it retains as much of the flavour as possible. Until now this has not been a great success. Stork Food and Dairy Systems worked with the French research institute Inra on a machine that can sterilise milk without losing any of the flavour. Project manager Michiel van den Hout: "We drink very little sterilised milk in the Netherlands; here and in the US people prefer fresh milk. But in other parts of the world there is a demand for long-life milk that you can store unrefrigerated for months on end." The new sterilisation concept is already working on a small scale. In addition, Stork is also developing new sterilisation methods for bottles of various sizes. Up until now, bottles have been decontaminated using hydrogen peroxide. Stork can now reduce its use of chemicals using Plasma sterilisation. [www.sfds.eu](http://www.sfds.eu)



Photo: Nationale beeldbank/Yvonne wiering





## 20 years of revolutionary robotics

Dairy farmers call the 'milking robot' the ultimate 20th century invention. The Lely Astronaut, from the Dutch machinery manufacturer Lely, has significantly reduced the amount of physical labour required in the agricultural sector. The milking robot can be used 24 hours-a-day, never falls ill, and you don't hear the cows complaining. Since its invention in 1992 Lely has become a global player. The company also develops robotic feed pushers (Lely Juno). Together with the software company Triodor, Lely won a Technology Award for 'Time for Cows'. This management system provides dairy farmers with an overview of their herd's health and production levels. Twenty years after the first milking robot was launched, the 12,500th Lely Astronaut milking robot was installed at the end of 2011. This presented the perfect opportunity for Lely to launch a competition for its customers on YouTube. In just two months 51 videos were submitted from 15 different countries. You can view them on [www.lely.com/en/home](http://www.lely.com/en/home)

## Breathing space for fruit and vegetables

Research has revealed that the perforated film used to package fruit and vegetables is not always the best one. Each type of fruit or vegetable breathes differently and therefore requires a different degree of perforation. If the packaging film does not provide enough aeration, then the product suffocates and becomes acidic. If there is too much aeration then discolouration will occur. Perforating machine manufacturer PerfoTec has developed a 'respiration measurement device' that precisely measures how much air each product requires. The perforating machine can then laser the packaging film with the optimum degree of perforation. Supermarkets, warehouses and other packagers can consult a website to quickly discover the correct settings for the laser. The technology improves 'best before' dates by up to 7 days. All the fruit and vegetable processing firms in France use it and the invention is also gaining ground in England, the United States and the Netherlands. [www.perfotec.com](http://www.perfotec.com)



## Enriched, even-tastier bread

Twenty-to-forty-percent of hospital patients and people in nursing homes are undernourished. The elderly in particular eat less. "In the Netherlands, disease-related malnutrition costs 1.9 billion euros each year and those aged sixty-and-over account for 1.5 billion euros", exclaims EBIC Director Peter Weegels. "This is usually due to protein deficiency. You can provide protein drinks, but people often don't like them. The idea is for protein enrichment to be consumed through regular foodstuffs and bread is the perfect product." Together with the Dutch food entrepreneur Carezzo, the European Bakery Innovation Centre (EBIC) has developed bread that contains twice as much protein but tastes just as good.

Over the last two years EBIC has been experimenting to find the ideal combination of protein ratio to taste. "The consumer panel at Wageningen University also includes older people. Everyone found that the enriched bread tasted better compared with wholemeal bread." Sonneveld is now busy rolling Carezzo out in the Netherlands and Belgium. In the meantime, the EBIC is fully involved in studies of other bread enriching resources for public and private parties. Sonneveld was able to reduce the amount of salt in various bread mixes by 50%.

[www.sonneveld.com/en/innovation](http://www.sonneveld.com/en/innovation)

## Trendsetting in soups and sauces

Struik Foods Europe is a leading Dutch company that produces soups and sauces. The firm is a trendsetter in environmentally friendly production methods. For instance, it has its own in-house water collection and purification system. The company invests 15 million euros each year in innovation, food safety and food quality. Struik recently took a major strategic step when it acquired Sonnen Bassermann from Heinz. It is the second-largest brand of soups and ready-made meals on the German market. Struik wants to use this acquisition to reinforce its leading position in Western Europe and in particular on the German market with its 80 million consumers.


[www.struik.com](http://www.struik.com)



Photo: Shutterstock

# Synergy between industry and academia

The Netherlands believes in combining complementary talent. Universities, knowledge institutes and industry work together as equal partners. Together they are responsible for unlocking useful new knowledge or solving global food issues. TI Food and Nutrition performs research in the sensory laboratory at Wageningen University's Restaurant of the Future. The test subjects are university employees and their guests, who are closely monitored by cameras. (See also page 16)







**Jan Maat** is the Managing Director of Top Institute Food and Nutrition, a public private partnership for interdisciplinary research in food and nutrition.



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"In the Netherlands industry and academia are closely linked. TI Food and Nutrition is a prime example of this. We were founded in 1997 on the initiative of companies and the Dutch government to encourage public-private partnerships in the sector. The fact is, if the desire for knowledge is better aligned with knowledge advancement, then the scope and scientific excellence of the knowledge infrastructure will increase as a whole. Our primary ambition is to make the Netherlands a hub of knowledge for the agri-food sector."

### Which issues does the research address?

"In TI Food and Nutrition companies and knowledge institutes can work together to solve complex innovation issues that are relevant on an international level. For example research into how we can reduce the amount of salt in our products without compromising on their taste and shelf life, how we can help prevent obesity, how we can ensure that the elderly remain mobile for longer or don't become undernourished as quickly, and how we can reduce methane gas emissions from dairy cows. Methane gas is a greenhouse gas that is 25 times more potent than CO<sub>2</sub>. This last example is a study from the theme of Food Chain Sustainability and Dynamics. This theme takes on a collective challenge to improve food system efficiency and effectiveness through the optimum use of raw materials, water, energy and other resources, while maintaining strict levels of food quality and food safety. The basic principle is that future food chains need to operate in synergy with the environment, society and economies in order to meet the needs of consumers."

### What advantages do public-private partnerships offer?

"Time and time again we notice that it is precisely this synergy between industry and academia that offers both parties incredible potential. It is unrealistic for private parties to possess all this scientific expertise in-house. It is often difficult for them to enlist the help of the right scientists from the relevant disciplines. By not recruiting scientists, but by working with external experts, a company can retain flexibility whilst maintaining access to critical scientists. With regard to the other side of the partnership, at universities and other knowledge organisations, the objective is scientific excellence. Cooperating with commercial companies makes it possible to perform a lot of research that the companies could not perform alone. Furthermore, for many researchers there is additional motivation if their applied research is also

used directly in practice. The standard is high, as one can see from the citation index for our scientific articles. The number of times that publications by TI Food and Nutrition are cited in other scientific articles is 1.8 times above the average.

### How is this Dutch approach viewed internationally?

"Our organised cross-fertilization is inspirational. Whilst inaugurating the new academic year at Wageningen University recently, Ellis Rubinstein, president of the New York Academy of Sciences stated: "For so many decades, if not centuries, universities wanted to operate on their own campuses and the other world didn't exist out there. What are really sweeping our globe are these public private partnerships. Not only to get university researchers to work with industry researchers, but also for industry itself to work in pre-competitive partnerships on devastating problems. The companies can't afford to work in those areas by themselves because they're losing too much money."

### Can such a small country really achieve this?

"I don't doubt it for a second. Rubinstein called Wageningen University a 'role model for the world'. He said: "The new alliances that you created are crucial. The Netherlands, in general, has always impressed me with its ability to be strategic for a small country, and really drive for excellence in ways that many countries can't." You see that companies come to us precisely because of our science and knowledge. We are creating an agri-food knowledge hub right here, and everyone is welcome to come and join our ranks."

### TI Food and Nutrition partners

Industry partners: Cargill, Chr. Hansen, CSM, Danone, DSM, Dutch Food Industry Federation, Dutch Food Retail Association, FrieslandCampina, Fromageries Bel, Kellogg's, Nestlé, Pepsico, Unilever and VION.

Other private parties: CRV, GSK, Philips and the Dutch Dairy Board.

Research partners: ACTA, Maastricht University/MUMC, NIZO food research, TNO, University of Groningen/UMCG and Wageningen UR (University and Research centre).

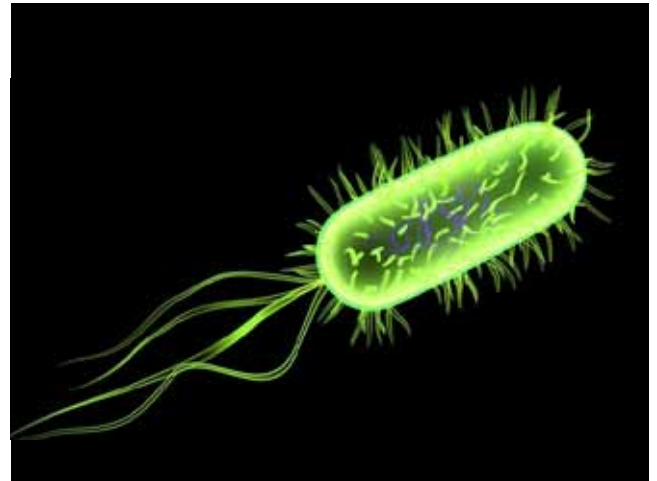


### ◀ Restaurant of the Future

Why do we eat some things but not others? Food choices are largely determined by our subconscious. Food & Biobased Research at Wageningen UR study, together with participants from the food industry, the factors that influence these choices. The Restaurant of the Future provides researchers with an insight into people's real-life eating habits. R&D Manager Marchel Gorselink: "It is a 'normal' restaurant where 150 people eat every day. We use cameras to observe how consumers make their choices and how they interact with food. We also look at the impact of smell, taste and chewing behaviour. We try to identify the consumer's emotions and link them to product development." The restaurant helps companies develop healthy and sustainable products. Strategies are devised to get consumers to eat less salt. Meanwhile, the real-life results are being applied elsewhere, for example to (top) athletes, the elderly in nursing homes and to schoolchildren. [www.restaurantvandetoeekomst.wur.nl/UK](http://www.restaurantvandetoeekomst.wur.nl/UK)

### 'Oscar' for bacteria-busting champion ▶

Pregnant women and the elderly are vulnerable to Listeria, a genus of bacteria that is found in products such as soft cheeses, smoked salmon and pre-cooked meat products. If an outbreak occurs, 20 to 30% of those infected will die. However, the bacteria can be safely eliminated during production with a bacteriophage, the bacteria's natural enemy. The Dutch firm Microcos develops technologies to apply the correct bacteriophage to a particular bacterium. Microcos has developed products such as Salmorex, a food safety product to combat Salmonella, and LISTEX, that helps food processing businesses in their fight against Listeria. LISTEX has won many awards, including the FIE Gold Award, the 'Oscar' of the food industry. <http://microcos.com>



### ◀ Flour + water + heat = almost chicken

Flexitarians are not vegetarians, they just eat less meat. Ojah has developed a meat substitute with this group in mind. 'Beeter' (an exaggeration of the Dutch word 'beter' meaning 'better') is made from vegetable proteins that take on a structure similar to meat when heated at a high temperature. "We have mixed and compressed flour and water in a very clever way", explains Commercial Director Jeroen Willemsen. "During tastings throughout the product test phase, we declared, 'it tastes like chicken'." Willemsen founded Het Planeet, a knowledge platform for 25 producers of 'new' protein products. Ojah managed the entire project itself from product conception to bringing it to market and the company has received the most prestigious Dutch SME Innovation Award. [www.plenti.eu](http://www.plenti.eu)





## Innovation hotspot

Heinz Europe is currently building its largest Innovation Centre outside the US in the Dutch city of Nijmegen. “We are at the heart of Food Valley and offer an attractive workplace for top talent”, explains Mark Atkins, Vice President R&D of Heinz in Europe. “The Netherlands offers an excellent environment for innovation, effective and cooperative partners with entrepreneurial skills, various universities and excellent agri-food sector research capabilities. More than 100 years after the founder Henri John Heinz put his ketchup in a glass bottle so that consumers could see what they were buying, the innovation centre will reflect this philosophy and offer a transparent and sustainable workplace.” [www.heinz.com](http://www.heinz.com)

## Longer-lasting fizz in your cola

Avantium Chemicals has developed plastic bottles produced from 100% renewable raw materials and that also ensures that the fizz in your cola lasts longer. Coca-Cola is working with three parties, including the Dutch Avantium. Vice President Development, Ed de Jong: “What is unique about our concept is that we are replacing the petroleum-based ‘T’ in PET by a biobased ‘F’, furandicarboxylic acid that provides the polymer with superior barrier properties. It reduces the penetration level for oxygen by between 6 and 10 times and by three times for CO<sub>2</sub>. This allows us to produce thinner packaging and the bottle is also suitable for oxygen sensitive products such as beer and ketchup.” [www.avantium.com](http://www.avantium.com)



## Milk refinery

Milk is packed full of protein. These are processed in high-quality products such as medical foods. Baby food, another example, is enriched with whey protein, traditionally a by-product of cheese production. But how can you produce whey without making cheese? FrieslandCampina, together with Milk Prism, has found another method of separating milk into different proteins, just like in a refinery. An innovative membrane technique makes it possible to extract the proteins directly from the milk. “It completely changes the way we view milk”, enthuses Research Manager Ynte de Vries about this more scientific approach to milk.

[www.frieslandcampina.com/english/innovation](http://www.frieslandcampina.com/english/innovation)

Photo: Shutterstock



# Safer food for metropolitan areas

In 2050, 70% of the world's population will live in cities. This puts enormous pressure on food production and food safety. Metropolitan Food Security is therefore high on the international agenda of governments and researchers. Dutch researchers are making plans for sustainable metropolitan food clusters on a global scale. These take the form of the agropark concept such as that in China where Wageningen UR is advising on the construction of an Ecovalley on the outskirts of Beijing.







**Willie van den Broek** works for Food and Biobased Research, Wageningen UR. As Business Developer Metropolitan Food Security he provides advice on food security and food chains to emerging economies.



[www.alterra.wur.nl/UK/research/China/Agroparks](http://www.alterra.wur.nl/UK/research/China/Agroparks)

Beijing, the Chinese capital, is home to 17 million inhabitants and this number is rising everyday. The millions of chickens, pigs, vegetables and other products required to feed the population have to be transported over considerable distances, for example, from Hainan, an island in the South China Sea. Food is transported using open trucks, cars and mopeds in all kinds of weather to arrive in Beijing at the end of a journey lasting five long days, precisely-on-time to be sold in the market and a fine example of 'just-in-time delivery'. However, if someone falls ill after consuming one of these products they can never be sure what the exact cause is.

### Preventing food debacles

"Current food provision for large metropolises is neither transparent nor dynamic", claims Willie van de Broek. The Wageningen UR researcher is part of a multidisciplinary team involved in international food security. How can we ensure that people in metropolises have access to good food and that the food is safe? "The world's population is approaching 9 billion", says Van den Broek. "Seventy percent of these world citizens will soon live in cities. In the Netherlands we have transparent food chains, optimised from the logistics perspective. However, in other countries, food chain standards are not as high. In local markets you find everything hanging out in the open, side by side, from live chickens to fresh meat. It is not regulated. The last thing a government wants is a food debacle. They want to know how to make food safe."

### Ecovalley in Beijing

Metropolises retain more control of food safety by achieving optimal integration of food chains in a spatial cluster, an 'agropark'. Van de Broek and his team travel all-over the world to advise governments and businesses on this topic. The Wageningen UR has a field office in Beijing and is working together with the Dutch business community on one of the largest agroparks to-date: 'Ecovalley'. This is a food cluster close to Beijing, which, on paper, is a city in itself, with greenhouses, fields and factories. Here, in the future, food will be produced 24/7 in an effective and efficient manner. The plan for Ecovalley was commissioned by COFCO, one of China's largest food companies.

### What Wageningen can contribute

In the Ecovalley development, Van den Broek's team is first performing market research into local requirements, and into which products are most suitable for the soil and the climate. Seeds, substrate, bees, the decision whether or not to use pesticides; all these issues are being examined. "Varieties that are suitable for Dutch soil may not necessarily thrive here. In China, many areas have saline soil. Technology that works in the Netherlands may not work in China. You can consider all kinds of great innovations but, in the Netherlands, everything is well organised; abroad, it's more a question of 'going back to basics'. Fortunately, Dutch growers also possess a great deal of intrinsic knowledge built up from years of experience in the sector, so we are also bringing our 'green fingers'."

### Responding to cultural differences

Prior to arriving at this point, major international projects of this type involve all manner of challenges, specifically in the areas of telecommunications, bureaucracy and culture. In this instance, the payment of taxes involved a considerable negotiation process. "The Chinese have to negotiate the VAT rate with their tax office. You only find out which tax rate will be applied after the contract has been agreed at which point you can approach your local tax office." However, project negotiations can be concluded quickly. "During the project we are also aware that our client is not always familiar with the new techniques that we propose. Gaining support from their bosses and other stakeholders is therefore essential. This also applies to communication methods. "We employ Chinese staff who respond flawlessly to the nuanced way in which our client communicates."

### Patience is a virtue

"As a team, we provide comprehensive advice about which products COFCO should cultivate along with the associated food safety procedures and, in this way, the client can get straight to work. If they do so, Beijing's food supply will improve significantly. However, the ultimate completion of such a large agropark is also a long-term affair. Let's take the example of zoning plans that require modification. This is not something that will be settled in six months. We started a similar plan five years ago, in India, and the park is still under development."

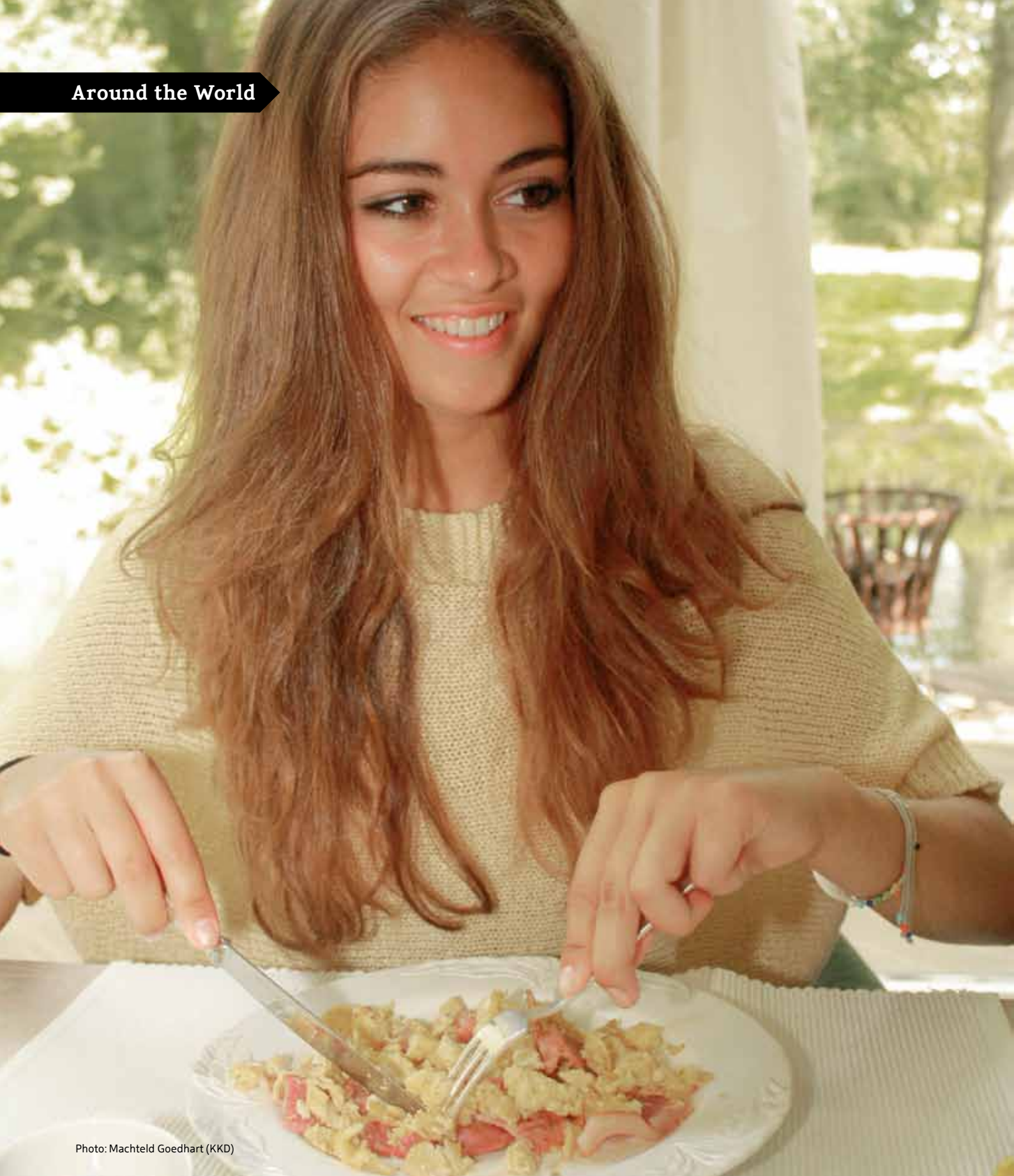


Photo: Machteld Goedhart (KKD)

## Breakfast with a mission



The typical English breakfast: bacon, eggs and sausages. Fatty and salty. High salt intake (average 9 grams a day, while 6 grams is the maximum) results in an increased risk of cardio-vascular disease, the No 1 threat to public health. Food concern VION, in association with FrieslandCampina, has performed research on whether meat and cheese could be produced with less salt, without compromising on taste, shelf-life and consistency. The mission was a success. Every week VION exports 1,200 tonnes of bacon to Great Britain, a proportion of which contains 30% and even 50% less salt. With its headquarters in Eindhoven, VION has a turnover of 9.5 billion euros and some 26,500 employees.





Photo: Heineken

## Tapping into a growth market



Heineken beer is popular all over the world and available in over 180 countries. The beer is brewed in 140 breweries in 70 countries. In 2011, Heineken N.V. sold 214 million hectolitres of beer. In September 2012, the brewer acquired its Asian joint venture partner Fraser & Neave's stake in Asia Pacific Breweries (APB). APB is a leading brewer in the fast-growing Southeast Asian beer market and produces Tiger Beer, popular across Asia, the popular Indonesian beer Bintang and various other prominent local Asian brands. Furthermore, Heineken exports beer to countries such as Taiwan and Japan and has a successful partnership with United Breweries in India.



Photo: AVEBE

## Potato-enhanced wine gums



AVEBE's starches are used to enhance products to make them transparent, glistening, soft, creamy, crisp and light. This Dutch cooperative is the global leader in potato starch solutions. AVEBE supplies starches and derivatives to a variety of food processors including food-producing multinationals whose products can be found in every household. Their products and recipes are carefully customised to suit local tastes. The ETENIA™ starch product is a natural gelling agent, without an E-number. An ideal alternative for gelatine in wine gums, an attractive option for people who avoid animal products owing to their beliefs or convictions. ETENIA™ was developed with DSM Food Specialties. [www.avebe.com](http://www.avebe.com)

# “If we say it’s safe, it is safe”

The potato wholesaler Willem Weuthen from the German Rhineland and the Dutch firm Aviko, number 2 in Europe in French fries and potato specialities, have already been working together for half a century. Both companies have solid local roots and a transnational vision. In Bavaria they joined forces to construct a factory that has proved to be a frontrunner in raw materials efficiency and sustainability. So what’s the next stop? China? Brazil?

German supermarket chains such as Aldi and Lidl have been present in the Netherlands for a long time. The Dutch response recently came from the multinational Ahold, which opened the first Albert Heijn supermarket in Aachen, Germany, in September 2012.

**Ferdi Buffen:** “I followed this development very closely. Albert Heijn wants to distinguish itself in Germany with convenience foods, high quality ready-made products. For us, and I mean Wilhelm Weuthen and Aviko, that’s good news.” In terms of transnational business, Aviko was founded in 1962, in the Dutch town of Keppel, in the midst of the potato farmers and at that time produced fresh French fries. The arrival of deep-freezing techniques in the 1970s opened the door to the European market. The range was expanded to include potato croquettes, Rösti and potato dishes complete with vegetables, meat and fish.

**Menno Bol:** “When we were looking for new suppliers of early potatoes we soon discovered the Weuthen firm in Schwalmthal, in the heart of a potato growing area, just across the border. The area has clay soil similar to ours own.”

## Do you notice any particular cultural differences between the Dutch and the Germans?

**Buffen:** “As far as I’m concerned it is a smooth transition. A deal’s a deal and this applies in the Netherlands and in Germany. We Germans are renowned for being meticulous, but the Dutch sometimes outdo us in this respect. Putting everything in writing to avoid any problems - that suits us down to the ground.”

**Bol:** “The Dutch are born traders: closing deals wherever they can. Germans are less keen on negotiation and prefer to invest in relationships with existing business partners, which appeals to us. They believe it is important to plan the future together to ensure that both parties benefit from the cooperation.”

## Why do you produce your French fries in Bavaria, in the south of Germany?

**Buffen:** “We are always on the lookout for suppliers within the Paris, Hamburg, Regensburg, Amsterdam belt. This is the most fertile part of Europe. The farmers are skilled, the climate is moderate, there’s clay soil and 650 millimetres of rainfall every year.”



## Menno Bol, Chief Operating Officer, Aviko BV

Steenderen, a place with two thousand inhabitants in the east of the Netherlands. Tractors and bicycles traverse a landscape of arable fields, woodland and floodplains of the river IJssel. The calm is deceptive. This is the home base of one of the four largest potato-processing firms in the world: Aviko. “I am proud of what we have achieved since 1962”, exclaims Menno Bol. Twenty subsidiaries located all over the world. However their international adventure began in Germany.



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www.facebook.com/Aviko.nl



www.aviko.nl





Photo: HH/Corbis

**Bol:** “This is the southernmost area in Europe where you can produce potatoes cost-effectively and competitively. That’s why we acquired a business here in 1998. The Weuthen company redeveloped the factory under the name ‘Kartoffel Centrale Bayern’ (KCB).”

**Buffen:** “Bavaria is home to some excellent farmers, even if they are stubborn. They want to be addressed in their own language while the people from Aviko at KCB decide the strategy and run the daily operations.”

**Bol:** “And we aren’t even shareholders in KCB. That’s how great their trust is.”

#### Are we talking about the most modern potato factory in the world?

**Bol:** “I would love to say that’s true, however I daren’t. We can’t look into the competition’s back yard. It’s a highly competitive sector. When it comes to yields of raw materials, potatoes, oil and energy, however, though we are certainly leading the way. And also when it comes to sustainability.”

**Weuthen:** “Legislation lays down considerable requirements in

that area. German entrepreneurs are long accustomed to this fact. They also largely support it. Regulation also has a positive side: it makes you creative.”

**Bol:** “In the town of Rain am Lech, we recently installed a boiler that runs on biomass, including wood, pruning waste and potato waste flows. At the moment we are examining whether we can use the excess heat for heating a new warmwater network, which has yet to be constructed in the town.”

#### Where are the growth markets for Aviko’s products?

**Weuthen:** “Our sales volume continues to grow in Europe, which is fantastic. I predict that Aviko meals will have a great future, but we couldn’t sell any more French fries to the Belgians or the French than we already do. Meanwhile, we see that eating habits in BRIC countries, particularly in China, are changing.

In this gigantic market we could score big-time, not least with guarantees on food safety. Because if we say it’s ‘safe’, it is safe.”

**Bol:** “Europe, with its efficient potato cultivation and processing techniques, seems well-positioned to serve these export markets and Eastern Europe.”



#### Ferdi Buffen, bedrijfsleider Weuthen Agrarhandel GmbH

Schwalmtal, when Ferdi Buffen says ‘we’ then he means Wilhelm Weuthen GmbH and Aviko.

“That goes without saying. My philosophy is: if my partner is doing well then so am I. The scale is incomparable but you could say that our businesses have grown alongside each other.”

Wilhelm Weuthen, a company that started off as a cooperative, trades in both seed potatoes and potatoes for human consumption. The firm is co-owner of Kartoffel Centrum Bayern in Rain am Lech, where over a hundred thousand tonnes of French fries are produced every year.



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www.weuthen-gmbh.de



www.kartoffel-centrum-bayern.com



Photo: HH/Theo van Pelt

### Doing business with the Dutch

The portal to doing business with the Netherlands. Here you can find Holland information, market information, rules and regulations. The information centre will help match you with interesting Dutch partners.

[www.hollandtrade.com/business-information](http://www.hollandtrade.com/business-information)

### Dutch diplomatic missions and Netherlands Business Support Offices

Provides useful business leads and contacts through its international network. Staff will assist you with your trade requests or introduce you to the various trade programmes. They can also connect you to agricultural attaches and innovation attaches.

[www.minbuza.nl/en/services/trade-information/trade-information.html](http://www.minbuza.nl/en/services/trade-information/trade-information.html)

### Netherlands Foreign Investment Agency (NFIA)

The NFIA is the first port of call for foreign companies wishing to establish their business in the Netherlands and to take advantage of the Dutch business environment as a strategic base for doing business in Europe.

[www.nfia.nl](http://www.nfia.nl)

### Dutch Top Sectors

These are the sectors in which the Netherlands excels globally and which represent a government priority: the Agri-food sector, Horticulture and propagation materials, High Tech, Energy, Logistics, the Creative Industry, Life Sciences, Chemicals and Water. Head offices are another focus.

[www.government.nl/issues/entrepreneurship-and-innovation/investing-in-top-sectors](http://www.government.nl/issues/entrepreneurship-and-innovation/investing-in-top-sectors)

### Top Sector Agri-food

[www.government.nl/issues/entrepreneurship-and-innovation/investing-in-top-sectors/agri-food](http://www.government.nl/issues/entrepreneurship-and-innovation/investing-in-top-sectors/agri-food)

### Top Institute Food and Nutrition

TIFN is a public private partnership involving science, industry and government conducting strategic research into food and nutrition. Their partners are key players in the global food industry: twenty-six leading food and ingredient manufacturers and personal care companies and respected research institutes and universities.

[www.tifn.nl](http://www.tifn.nl)

### Carbohydrate Competence Centre

The CCC was established to generate and develop high-quality knowledge of carbohydrates to stimulate innovation and contribute to a healthier and more sustainable society.

[www.cccresearch.nl/en](http://www.cccresearch.nl/en)

### Dutch Federation of Agriculture and Horticulture (LTO)

An entrepreneurial and employers' organisation representing almost 50,000 agricultural entrepreneurs, and three regional cooperative arrangements.

[www.lto.nl/english](http://www.lto.nl/english)

### Federation of Dutch Food & Grocery Industry

The FNLI is the umbrella organisation for the Dutch Food & Grocery Industry (food and non-food).

[www.fnli.nl](http://www.fnli.nl) (in Dutch)

### Dutch Food Retail Agency (CBL)

The CBL is the sector organisation of all supermarkets in the Netherlands and acts as spokesman and lobbyist for the food retail sector.

[www.cbl.nl](http://www.cbl.nl) (in Dutch)